



MISSOURI DEPARTMENT OF TRANSPORTATION  
185 CFM AIR COMPRESSOR SPECIFICATIONS

The purpose for this specification is to secure a complete heavy-duty portable, self-contained, fully enclosed, diesel engine driven (fuel and electrical not reliant on truck) minimum 185 CFM rated capacity air compressor at 100 psi mounted on a steel frame. The rated pressure shall be measured after oil separation.

**Engine** The diesel engine shall be an industrial water-cooled four cylinder, with an intermittent rating of no less than 80 SAE brake horsepower at 2500 rpm. The engine shall have a 12-volt electrical system and the battery shall have minimum rating of 1000 CCA. A dedicated heavy duty, two stage, dry type air cleaner, with replaceable element and automatic filter maintenance shall be used to filter intake air. The fuel system shall include a no-rust fuel tank with a fuel/water separator and replaceable fuel filter. Fuel fill access shall be from the street side and protected by a lockable door.

**Compressor Aired:** The compressor shall be oil flooded rotary screw type. The air end shall be direct driven through a flexible coupling to isolate engine and compressor vibrations. An inlet unloader valve shall be used to provide stepless engine speed control to match demand. A dedicated heavy-duty two stage, dry type air cleaner, with replaceable element and automatic filter maintenance indicator shall be used to filter intake air.

**Cooling System:** The engine and air end heat exchangers shall be finned tube type coolers arranged in a side-by-side configuration for easy cleaning. Primary access for cooler cleaning shall be provided through a full width door located on the street side of the compressor unit. Easily removable side panels shall provide access to the fan side of the coolers for additional cleaning and debris removal. The cooling air fan shall be engine mounted, drawing cool air through the enclosure before entering the heat exchangers to maintain internal package temperatures of no more than 20 degrees F above that of ambient. The radiator coolant level and fill shall be easily accessible through the full size lockable door.

**Compressor Oil System:** The compressor oil system shall incorporate a vertical separator tank, a temperature bypass valve and a 25-micron spin on oil filter. The separator tanks shall have a minimum of 6 gallons, and include an oil level gauge and over-fill protection.

**Maintenance and Service:** Access for all routine maintenance service shall be provided through full size hinged doors located on the ends of the unit.

*Curbside door shall provide access for:*

Engine oil level check, engine oil fill,

Engine oil filter servicing.

Engine fuel filter servicing and fuel system primer pump

Engine air filter servicing and compressor air filter servicing



Compressor oil level check, compressor oil fill, compressor oil filter servicing  
Compressor air/oil separator element maintenance,  
Battery maintenance.

Street side door shall provide access for:

Fuel tank fill,  
Radiator coolant level check and fill,  
Radiator and oil cooler cleaning,

Capped drain ports shall be provided on the curbside end of the unit for all fluids including engine oil, compressor oil, engine coolant and fuel. The instruments and controls shall be mounted in the curbside door providing access to the backside for servicing. A separate lockable door shall protect the instrument and control panel. Side access shall be provided through panels with quick latches.

**Enclosure:** A 14-gaugesheet metal housing shall fully enclose the compressor unit providing protection as well as noise attenuation. The enclosure shall be primed and painted with two coats of enamel paint. The topcoat shall provide a durable textured finish. The fuel tank fill shall be located opposite the instrument and controls panel and shall be behind a lockable door. All doors and panels shall either be lockable or bolted. The instrument and control panel shall have a separate lockable door; end mounted. The engine and compressor shall be rubber mounted to the main frame to minimize vibration. An internal, single point, lifting bail capable of lifting the complete unit shall be included. The unit shall be mounted on a 7 gauge formed channel steel chassis with forklifts slots accessible from either end. The enclosure shall have removable side panels.

**Instruments & Controls:** The instruments and controls shall be clearly labeled and located on the end of the unit, accessible without opening the main end access doors and protected with a separate unobstructed lockable door. Engine starting shall be achieved using a single motion rotary switch that includes engine oil pressure bypass. Starting and warm up shall be while the compressor is unloaded. The instrument panel shall include the following gauges; hourmeter, voltmeter, tachometer discharge air pressure, discharge air temperature, engine oil pressure, engine coolant temperature and fuel level. The panel shall include diagnostic light indicators to aid in troubleshooting alternator malfunction air filter restriction or when the unit stops due to a safety shutdown device. Two  $\frac{3}{4}$  air service valves shall be provided below the instrument and control panel.

**Safety Features:** The compressor shall incorporate the following features to ensure safety and to protect the equipment; fan guards meeting OSHA recommendations, operating and maintenance manuals, operating and safety decals in accordance with ANSI Z535.4-1996, automatic and manual blowdown valves, an ASME approved pressure relief valve on the oil separator tank, a starter protection system to prevent engaging the engine starter when the alternator is turning safety shutdown devices in case of high compressor discharge air temperature, low engine oil pressure, high engine coolant temperature.



**Generator:** 4.5 KW Intermittent duty 3.0 KW continuous generator shall include a voltmeter; two 20 amp 1 phase 60hz GFI duplex receptacles, one 25 amp system circuit breaker and a 3 position switch for 3 modes of operation:

1. Electric power only; Engine at constant speed for 120/1/60hz power. Compressed air not available
2. Electric power + compressed air; Engine speed changes in response demand for air. Generator frequency varies directly as the engine speed varies for idle to full load; i.e. frequency increases with engine speed.
3. Compressed air only; Electric power is not available.

**Dimensions:** Overall length maximum 90 “with generator, overall width maximum 33” overall height 53”

**Warranty** – The air compressor should be warranted to be free of defects in material and workmanship on all components for one year from time of delivery or manufacturers warranty, which ever is greater. The air end shall be warranted for two years

The Missouri Department of Transportation Commission reserves the right to waive technicalities and to reject any or all bids and no bid is final until formally accept by the commission.